

What Is Claimed Is:

1. A GMR sensor element having a rotationally symmetrical positioning of especially eight GMR resistor elements which are connected to each other to form two Wheatstone's full bridges.
2. The GMR sensor element as recited in Claim 1, wherein the GMR resistor elements are interleaved.
3. The GMR sensor element as recited in Claim 1 or 2, wherein the GMR resistor elements are structured in strip form.
4. The GMR sensor element as recited in one of the preceding claims, wherein each GMR resistor element of the Wheatstone's full bridges is subdivided into two equally constructed halves having directions, of the GMR resistor elements that are structured in strip form, that are orthogonal to each other.
5. The GMR sensor element as recited in one of the preceding claims, wherein one may use it to carry out a determinate measurement of an angle ( $\alpha$ ) of an outer magnetic field (B) with respect to a magnetization of a reference layer (RL) over  $360^\circ$ .
6. The GMR sensor element as recited in one of the preceding claims, wherein the GMR resistor elements are situated at least approximately in circular fashion or octagonally.
7. The use of a GMR sensor element, as recited in one of the preceding claims, in an angle sensor for the detection of the absolute position of a camshaft or a crankshaft in a motor vehicle, particularly in the case of a camshaft-free engine having electrical or electrohydraulic valve timing, of a motor position of an electrically commutated motor, or for detection of a windshield wiper position, or in the steering angle sensor system in motor vehicles.